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0436

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Elevations taken to determine Water Level of Sacramento River

May 21st 1905

Distances are at Right Angles to "E" Line from Sta 59+95^{8}

abandoned

Sta	+S	H.I.	F.S.	Rod	Elev	
61	2.57				23.60	
59+95^{8}	E.C.			9.35	16.82	
59+35^{8}				7.15	19.02	
" "		25.85		7.15	18.70	
59+95^{8}	E.C.			9.35	16.50	Elev plug 163
				2.6	23.3	
				8.25	17.60	
61+50			1.21		17.5	
T.P.	9.66	34.30	1.21		24.64	
0=59+95^{8}				17.3	17.00	Toe of Levee
0+20				4.8	29.5	Top of Levee
0+32				5.0	29.3	" " "
T.P.	5.05	27.14	12.21		22.09	
+60				7.2	19.9	Toe of Levee
2+72				8.36	18.78	Elev Surface Water

0438

Elevation of Surface of Water Sacramento River opp. Stā "E" 359+15^{7}

Stā	+S	H.I.	F.S.	Rod	Elev	May 21st 1905
Distances taken at Right Angles to "E" Line						
359+15^{7}	14.74	28.23			13.49	Reading Hub to hundredths
356+75^{7}						
357+05^{7}				12.07	16.16	Old Elev 16.2
357+65^{7}				13.57	14.66	" " 14.7
0=359+15^{7}				14.7	13.5	Toe of Levee
+20				2.0	26.2	Top of Levee
+24				1.7	26.5	" " "
+43^{5}			13.77		14.46	Water Surface. Sacramento River

Elev of Surface of Water in Sacramento River opp-Sta "E" 448.6

Sta	+S.	H.I.	-S.	Rod	Elev	May 21st 1905
Distances taken at Right Angles to the "E" Line						
B.M. No 26	11.83	26.29			14.458	20' R 457+65
T.P.	2.87	26.39	2.77		23.52 ✓	
0 = 448 "E"				11.72	14.67	14.7 Check "E" Line
+13				11.7	14.7	Toe of Levee
+30				2.3	24.1	Top " "
+44				2.7	23.7	" " "
+60				9.0	17.4	Toe " "
1+02			12.60		13.80 13.79	Elev Surface of Water

Elev- of Surface of Water in Sacramento River opp-Sta "E" 717

May 21st 1905

Distances taken at Right Angles to "E" Line

	+S	H.I.	-S	Rod	Elev.	
726					13.60	
717	12.26	25.46			13.20	
717+50				9.6	15.9	Elev 15.8
0=717				12.3	13.2	Toe of Levee
+14				4.0	21.5	Top of "
+31				4.0	21.5	" " "
+53			13.98		11.48	Elev of water

0441

Elev of Surface of Water in Sacramento River - opp - Sta "E" 802+50

May 21st 1905

Distances taken at Right Angles to "E" Line.

Sta	+S	H.I.	-S	Rod	Elev	
802+50	3.31	21.11			17.80	
803				6.2	14.9	old Ele 15^{0}
0=802+50				3.3	17.8	
55 R				5.4	15.7	West Edge Top of Levee
68^{3} "			10.37		10.74	Elev Surface Water

0442

Elev of Surface of Water in Sacramento River opp Sta "E" 850

May 21st 1905

	+S	H.I.	-S	Rod	Elev	
Distances taken at Right Angles to "E" Line						
850	9.72	20.82			11.10	
849+50				9.9	10.9	Elev of 849+50 = 10.8
0=850				9.7	11.1	
+05				10.6	10.2	Toe of Levee
+15				5.7	15.1	Break in Slope of Levee
+20				2.0	18.8	Top of Levee
+30				4.8	16.0	Elev on Wagon Road "E" Side
+50				54	15.4	" " " " "W" "
+76				69	13.9	Edge of Bank
+81			10.64		10.18	Elev of Water

0443

Elev. of Surface of Water in Sacramento River opp. Sta. "E" 899+98²

May 21st 1905

Distances taken at Right Angles to "E" Line.

	+S.	H.I.	-S	Rod	Elev	
899+98²						
900+88²	3.79	22.34			18.549	CC. Original levels read to thousandths
0=899+98²				4.48	17.86	Old Elev 18.2 In road
				7.24	15.10	" " 15.1
0=899+98²					17.9	Old Stā on "E" Line
+04				2.7	19.6	Top of Levee "E" side
+26				4.6	17.7	" " W "
+33				6.5	15.8	Toe of Levee
+70				7.3	15.0	old wagon Road
1+04				6.4	15.9	Toe of New Levee
T.P.	9.46	31.80	0.00		22.34	
1+30				0.3	31.5	Top of New Levee
T.P.	2.34	20.65	13.49		18.31	
1+58				10.61	10.04	Elev of Water

Not leveled off

Elev- of Surface of Water in Sacramento River- Opp- Sta "E" 1399

May 22nd 1905

"Distances taken at Right Angles to "E" Line

9^{30} A.M.

Sta	+S	H.I.	-S	Rod		
B.M. No 46	5.58	18.92			13.343	Oak 4' dia - 65' R 1397
0=1399				8.3	10.6	on Top of Hub 10.6 ✓
+10				8.2	10.7	Toe of Levee
+28				3.0	15.9	Top " "
+35				5.2	13.7	East Edge of Road
+49				6.3	12.6	West " " "
+61^{5}				10.1	08.8	Toe of Levee
+90			11.67		7.25	Elev Surface of Water-

Elev. of Surface of water in Sacramento River opp "E" 1352+50

May 22nd 1905

Distances taken at Right Angles to "E" Line about 10 30 A.M

Sta	+S	H.I.	−S	Rod		
1352+50	11.4	20.52			09.10	on Hub
1353						

Abandoned

about 10

about 10^{15} a.m.

Sta	+S	H.I.	−S	Rod		
B.M. No 44	5.58	20.59			15.009	on Tree
1353				6.1	14.5	on Hub
1352+50 = 0				11.4	09.2	Toe of Levee East side
+19				0.6	20.0	East Edge Top of Levee } Roadway
+43				0.2	20.4	West " " " " } Roadway
+65				6.6	14.0	Toe of Levee West side
+80			13.25		07.34	Surface of Water Sac - River

0446

Elev. of Surface of Water in Sacramento River Opp Sta "E" 1294+75

May 22nd 1905

Sta	+5					
Distances taken at Right Angles to "E" Line						
						About 11^{30} A.M.
1294+75	6.45	19.87			13.42	Elev on Hub read to hundredths.
1295				6.1	13.8	old Elev = 13.7
1294+75	=0			6.5	13.4	Toe of Levee
+21				2.4	17.5	Top of Levee East
+55				3.4	16.5	" " " West
+77.5			12.43		7.44	Surface of Water - Sac. River

Levee to be Raised 3 ft for about 300'.

Stakes buried in sand on acct of Reinforced Levee

Elev- of Surface of Water in Sacramento River Opp "E" 1255+50

May 22nd 1905

Distances taken at Right Angles to "E" Line at 12^{30} P.M.

Sta	+S	H.I.	−S	Rod		
1255+50	11.78	20.98			09.30	Not good.
				11.6	9.4	
1256+50	11.59	21.09			09.50	
1255+50				11.8	9.30	Elev on Gunnie Peg - "Peg Rotted"
0=1255+50				11.8	9.3	Toe of Levee
+23				1.9	192	Top of " East Side
+37				2.3	18.8	" " " West "
+56				6.4	147	Toe " " " "
+75				6.9	142	Top of River Bank
1+15±			1350		7.59	Surface of Water-Sac-River

Elev - of Surface of Water Sacramento River - Opp "E" 1200

May 22nd 1905

Distances at Right Angles to "E" Line

at 1 50 PM

1200+25	2.37	20.44			18.07	Read to hundreths
1200 = 0				3.5	16.9	old Elev 16.9
+34				3.3	17.1	Top of Levee East Side Road
+54				4.7	15.7	West Side of Road
+78				5.8	15.6	Edge of Bank at River
+91			12.53		7.91	Elev - Surface Water - Sac - River.
						Low place in Levee.

Elev of Surface of Water in Sacramento River – opp Sta "E" 1146+50

May 22nd 1905

at 2⁴⁵ P.M.

Distances at Right Angles to "E" Line

1145	8.87	21.57			12.70	on Peg at Sta 1145
+50				7.2	14.4	Old Ele 14.5
				5.97	15.60	on Hub at Sta 1146+50
0=1146+50	5.97	21.57			15.60	Elev of Hub at 1146+50 = 15.90 = 0.3 to high
+13				4.2	17.4	Top of Levee – in Pri-Road way
+47				6.4	15.2	East side of Road
+59				6.6	15.0	West " " "
+65				6.8	14.8	" Edge of Top of Levee
+90			13.54		08.03	Elev-Surface of Water in River

0450

Elev of Surface of Water in Sacramento River opp "E" about 1100

May 22nd 1905

Distances at Right Angles to "E" Line at 3 20 P.M.

B.M. No 35	6.48	24.10			17.615	50' R Sta 1100 on stump
0				12.8	11.3	Toe of Levee East side.
+18.				2.5	21.6	Top " " West
+33				2.3	21.8	" " " "
+47				7.1	17.0	Toe " " "
+60				7.7	16.4	Wagon Road
+93				11.9	12.2	
B.M.	3.92	21.54			17.615	50' R Sta 1100 on Stump
1+06			13.27		8.27	Elev of Water of River

Stakes Could not be found on acct of Reinforced Levee

Could only identify locality by B.M.

0451

Elev of Surface of Water in Sacramento River opp "E" 1048

May 22nd 1905

4.30 P.M.

Distances at Right Angles to "E" Line

1048	11.15	24.15		13.00	
1047+50			6.4	17.8	Old Elev 17.9 [illegible]
1047	6.15	24.15	6.15	18.0	
0=1048					
+06			10.9	13.3	Toe of Levee
+13			7.3	16.9	Top " "
+19			8.0	16.2	East Edge of Road
+34			7.8	16.4	West " " " & Toe of Levee
+69			0.5	23.7	Top of Levee = outside Levee
+92			10.5	13.7	Toe " " " "
1+17	Elev of Surface of Water		15.58	8.57	This Cross Section is at the North End of outside Levee

0452

Elev. of Surface of Water in Sacramento River opp "E" $1000+09^{3}$

May 22nd 1905

Distances at Right Angles to "E" Line

5^{30} PM

$1001+29^{3}$	6.84	22.84			16.00	
$1000+09^{3}$ = 0				2.71	20.1	old Elev 20.3
+16				0.9	21.9	Top of Levee East Edge
+25				0.7	22.1	" " " Center.
+40				3.6	19.2	Edge of Road
+62				4.3	18.5	Wedge of Wagon Road
+77				7.2	15.6	Edge of Wharf inside
$1+17^{5}$				7.13	15.71	" " " outside.
$1+17^{5}$				13.92	08.92	Elev of Surface of Water. no Stake put in here

0453

Elev- of Surface of Water in Sacramento River opp "E" 960+15.5

May 22nd 1905

6 20 PM

Distances at Right Angles to "E" Line

960+15.5	5.69	21.42		15.73	on Hub
=0					
+16			1.6	19.8	Top of Levee East side
+33			1.6	19.8	" " " West
+62			7.1	14.3	Toe of slope "
+72			7.5	13.9	East side of wagon Road
+86			7.5	13.9	west " " " "
1+17			12.19	09.23	Surface of water in River

0454

457+50

Elev of Surface of Water Sacramento River
Jan 22 1906

230+50 Water up to this station Willow Slough.
231+50 " " " " " Elev. 7.5 " " Jan. 26/06

333 Water .5 higher than station

352	25.44	10.04	15.4	
		5.56	19.88 -	18.8 by check. Elev of River opposite station I 352 Jan 19 1906
386+00	23.35	6.59	16.76	Elev. S.W. in River (Freeport Ferry) Jan 26/06
" +00			8.50	Gauge reads 8.50 " " Jan 26/06
			8.26	Difference Jan 26/06
I 401+50	26.0	9.8	16.2	
		7.8	18.2	Elev of River opposite 401+50 Jan 19 1906
BM	27.437	12.1	15.337	Elev of River opposite 457+50 Jan 19 1906
		9.8	17.637	

Elev of Water in Slough

Jan 23 1906

E 679+50		13.0	1.7	11.3	
			4.4	8.6	Elev of water E 679+42
E' 876+50		18.3	5.0	13.3	Appx
			7.2	11.1	Elev of water in slough opposite E' 876+50
					Water same Elev as Station E 833 5.5

Sacramento Southern R.R.
Sacramento to Walnut Grove.
Observed height of water back of levees where line runs away from River.

Observations taken	Height Flood.	Profile Grade at Station	Height of Profile Grade above Flood Plane	Date
Opposite Station 504	8.0	25.5	17.5	Jan. 19
" " E 617	8.5	25.0	16.5	" 19
" " E 679+42	8.6	24.4	15.8	" 23
" " E 833	5.5	23.1	17.6	" 23
" Sta."E" 876+50 Hollister's Lake " in Hensley's Slough.	11.1	22.9	11.8	" 23
Sacramento —	23.2	33.2	10.0	" 19
Opposite Sta 352 - Sacramento	18.8	27.8	9.0	" 19
" " 401+50 "	18.2	27.3	9.1	" 19
" " 457+50 "	17.6	26.9	9.3	" 19
" " 1022+00 Courtland-State Board of Public Wks. Gage	11.83	22.4	10.6	" 23
" " 1444 Walnut Grove - By Swing Bridge on Georgiana Slough.	10.8	20.3	9.5	" 23

Level equation for State Board Public Works Gage is in Level Book No 6 of the Sacramento Southern R.R. which is at present at Chief Engineers office Sacramento.

Diff of datum is taken as 3.8 the same as at Courtland Gage reads 14.6 Jan 23 − 3.8 = 10.8

3.85 is the difference between State Board of Public Works Gage datum and the City of Sacramento, which ~~a~~ latter datum is the datum of the Sacramento Southern levels. Our levels at Courtland make the difference $3^{\underline{77}}$

0457

Elevations of Sacramento River
Sacramento City Datum

Date 1906	Elevation	Remarks
Jan 11	7.2	Reading taken 4.30 P.M
12	8.0	" " " "
13		No observation taken.
14	18.6	Reading taken 4.30 P.M.
15	16.9	" " " "
16	19.5	" " " "
17	20.5	" " " "
18	22.9	" " " "
19	23.2	" " " "
20	21.4	" " " "
21	21.3	" " " "
22	21.7	" " " "

0458

Jan 15/08

Soundings in River opp Natural Gas Well. Property.

Sta.								
116.	117' Rt to S.W. in River	S.W. 14.4	8.7 10.	5.0 20.	6.0 40.	5.5 60.	4.4 80.	3.7 100.
117	127' " " "	S.W. 14.4	11.5 10.	8.5 20.	6.0 40.	5.5 60.	6.5 80.	6.2 100.
118	143' " " "	S.W. 14.4	9.4 10.	6.4 20.	6.4 40.	6.4 60.	6.4 80	6.2 100.
119	154' " " "	S.W. 14.4	11.5 10.	9.0 20.	6.5 40.	6.0 60.	6.5 80.	6.5 100
120.	155' " " "	S.W. 14.4	6.5 10.	5.5 20.	6.5 40.	7.5 60	6.5 80.	6.5 100
121	188' " " "	S.W. 14.4	9.5 10	6.5 20.	6.5 40	7.5 60	7.0 80	7.0 100
122.	Gage in River opp 211' Rt to S.W. in River	S.W. 14.4	8.5 10.	6.0 20.	6.0 40	7.0 60.	7.0 80.	7.0 100
123	235' " " "	S.W. 14.4	8.5 10.	5.5 20	6.0 40.	6.5 60	7.5 80	8.0 100.
124	310 " " "	S.W. 14.4	8.4 10.	5.5 20	6.0 40	7.5 60.	7.0 80	7.5 100.

0459

	+S	H.I.	Rod	Elev.	
333	H.W. opposite			10.5	H.W. in Slough Sunday Apr 1st 1906
B.M.	9.50	27.10		17.600	
355	H.W opposite		4.7	22.4	H.W Sunday Apr 1st 1906 Sac'to River
B.M.	9.71	26.37		16.686	
366+50	H.W. opposite		4.1	22.3	H.W. Sunday Apr 1st 1906 Sac'to River
385+50.	At Ferry Freeport			22.2	H.W. Sunday Apr 1st 1906. Sac'to River
401	at Meyer's Freeport			22.0	H.W. Sunday Apr 1st 1906. Sac'to River
	11.57	26.91		15.337	
457	H.W. opposite		5.4	21.5	H.W. Sunday Apr 1st 1906 Sac'to River
B.M.	5.60	15.01		9.408	
607	H.W. in Dredger Cut		5.1	9.9	H.W. in Cut Back of Dw'th 744.
679+50	H.W. opp:		-1.5	9.8	H.W. East of Levee nr Johnston's Pump House
724+50	H.W. opp:		+4.7 [illegible]	18.4	H.W. Sunday Apr 1st 1906. Sac'to River
725			+3.1	18.3	
B.M.	12.050	34.037		20.987	Oak tree E of 70+24.
67+50	H.W. opposite		7.4	26.6	H.W. Sunday Apr 1st 1906. Sac'to River

High Water Marks April 1906.

B.M.	3.296	15.689		12.293	On levee, by site Post Rt of E 6[illegible]82. C.G.M. No 2, p. 15.
⊼	6.648	13.497	8.840	6.849	
⊼	5.440	15.374	3.563	9.934	
⊼	7.538	18.515	4.217	11.057	
⊼	10.120	23.023	6.492	12.403	
H.W. Mark.			4.260	18.763 ✓	On levee in front of Wm Johnstons House by Wm Litens. Employee Opposite Sta E670 Approximate.
616 + 35± △	3.970	24.870		20.9	Couldn't find B.M. 150' R 616 + 35
618 + 80± △	5.315	24.870	5.315	19.555	Checks within .04 with Boulett's Levels
⊼	4.650	15.010	14.510	10.360	
⊼	6.320	15.960	5.370	9.640	
⊼	13.522	27.422	2.060	13.900	
H.W. Mark.			9.070	18.352 ✓	On sack [illegible] dredger cut at S. end of 744 by W.H. Nichols. Highest ever seen by Mr Nichols Opposite E 619.
B.M.	4.345	17.670	[illegible]	13.325	E^5 B.M. 150' L Sta "E^5" 745
⊼	3.030	15.915	4.785	12.885	
⊼	5.145	12.400	8.660	7.255	
⊼	3.747	12.847	3.300	9.100	
⊼	3.980	12.557	4.270	8.577	
⊼	6.670	15.697	3.530	9.027	
	8.198	21.895	2.000	13.697	
			3.750	18.145 ✓	Trash left by flood pointed out by Parson Smith. Opposite "E" 737

High Water Marks April 1906

E 787+50 △	4.700	18.169		13.469	El. obtained from E³ B.M. via Frey Runyon Levee
⊼	4.395	14.194	8.370	9.799	
⊼	4.215	13.684	4.725	9.469	
⊼	6.220	16.344	3.560	10.124	
⊼	9.475	21.384	4.445	11.899	Unable to find previous marks
H.W. Mark 1906			3.660	17.724 ✓	Stain on side of packing house Terry Est. about sta E 851 aband. or E 785 adopt.
					June 11 1906
E³ 844+00	6.270	11.770		5.700	On Stone June 12 1906
847+00	5.110	11.770	5.110	6.660	(1 ft higher than Boulett's levels)
847+00	4.090	11.770	4.090	7.680	(Checks with " ")
⊼	4.880	13.100	8.550	8.220	
⊼	6.270	16.620	2.770	10.350	
⊼	8.175	23.075	1.720	14.900	
H.W. Mark 1906			6.070	17.005	[illegible] 2½" below Barn door threshold by [illegible] 1½' lower than in 1881. op E³ 848.
⊼	4.035	23.890	3.220	19.855	
⊼	3.322	22.312	4.120	18.990	
H.W. Mark			4.790	17.522	Stain on side of Hulett's packing house [illegible] mark opposite E³ 835.
B M	6.090	20.508		14.418	
H.W.M. 1906			2.70	16.808 ✓	On middle post S. End of packing shed 75' R. E 959+[illegible] opposite E³ 914 by T.W. Dean

Base at Courtland road 19 ft April 2, 1906
Highest for 1906 by W.O. Fisher

Opposite E 1021+50

High Water Marks April 1906

1065+02	5.340	27.540	-	22.2	Ginnie
1065+3.2	5.860	27.540	5.860	21.680	Ginnie .18 higher than Boulett's levels
⊼	5.465	26.163	6.847	20.698	
H.W. Mark			10.315	15.846 ✓	On top of cap S. End of landing. 120' R of E 1073 by Ferryman. June 12 1906 June 13 1906
B.M. No. 36	5.135	22.02		16.885	Checks .139 lower than B M 36 - Book No 2 Browne. Bolt driven in top of stump 10' from River op. E 1118+10
H.W. Mark 1906			7.18	14.84	Notch in post on N.W. Corner Packing shed by A. Runyan about 95' R of Sta E. 1118+80
E1130+00			5.82	16.7 ✓	On Ginnie for check
B.M.	7.837	20.829		12.992	60' R Sta 1218 Boulette Retraced No 7 p 61
H.W. Mark			6.09	14.739 ✓	Stain on packing shed 40' R Sta 1218+50
B.M. No 41	7.225	24.232		17.007	8' R Sta 1265+20 Boulette Retraced No 7 p 68
⊼	5.510	27.482	3.260	20.972	
⊼	7.670	21.692	8.470	19.002	
H.W. Mark 1906			7.240	14.452 ✓	On Top of plank under Express office steps 100' R of E 1257+[illegible] by Express Agent

No mark at Mc Keehan's.

B M No 37	15.000	25.577		10.577	Nail in base of telegraph pole 15' L Sta E 1154+60
H.W. Mark 06			10.540	15.037 ✓	On sycamore 70' R Sta 1156+36. By Wm Barry.

0463

High Water Marks April 1906

B.M. No 45	6.150	24.006		17.856	on Walnut Stump. 50' R. Sta. 1378 Brown Level No 2 p 40
	4.770	22.256	6.480	17.526	
	4.907	23.248	3.875	18.381	
H.W. Mark 06			10.150	13.138 ✓	El of trash left by flood R. of Sta E 1390+00
E.B.M. No 49	7.350	21.027		13.677	Plainly marked on Witness Stake. Nail in base of cottonwood
⊼	4.975	23.292	2.710	18.317	
⊼	5.150	21.362	7.080	16.212	
⊼	3.020	21.382	3.000	18.362	
⊼	4.965	20.387	5.960	15.422	
			7.500	12.887 ✓	El of 18 ft mark on gage on landing in front of Saloon. Gage read 18^{4} on April 2nd Highest for 1906 according to Alex Brown El of H.W. Mark 13.287

C. P. Keyser leveler
C. C. Dana Rodman

High Water Marks - Feb - 1907

Date	Elev.	Remarks	
Feb. 9	10.^{4}	Opposite Sta. T 906 At old road bridge site	
" 7	10.^{0}	" " " " " " " "	
Feb. 9	10.^{4}	At pump house District 551	
" 7	10.^{1}	" " " " "	
Feb. 9	9.7	At Lockes levee Sta. T 1169+00	
" 7	9.8	" " " " "	
		Elevations of Sacramento River	
Feb. 7	13.5	At Sta. E 1265+70 — Vorden.—	
" 7	14.5	Opposite Steam Boat Slough.	
" 7	12.8	At Sta. E 1397. — Walnut Grove—	
" 8	16.5	At Sta. E 870+75	
		Gauge Readings.	
Feb. 7	17.^{6}	Walnut Grove	
" 7	18.^{4}	Vorden	
" 6	18.^{4}	Courtland	1. P.M.
" 6	18.^{6}	"	6. P.M.
" 7	19.^{1}	"	7. A.M.
" 7	19.^{6}	"	7. P.M.
" 8	19.^{9}	"	7. A.M.
" 8	20.^{0}	"	2. P.M.
" 8	15.^{8}	Isleton	4^{45} P.M.
" 9	15.^{6}	"	7. A.M.
" 9	16.^{0}	"	1. P.M.
" 9	16.^{0}	"	5. P.M.

Gauge Readings Corrected

C.E. Dufour Leveler

0465

Level Equation Between Sacramento Southern and U.S.G.S.

~~Sacramento Southern B.M. elevation of nail in top~~
~~of pile 90' right of Sta. 1021+70 = 19.648~~
~~Nail in notch on east side of top of pile supporting~~
~~gage - U.S.G.S. Elevation = 19.064~~
~~Difference in Elevations 0.584~~

Sacramento Southern elevation for 24.5 Mark on
State Board of Public Works Gauge at Courtland, Cal. 20.730
U.S.G.S. engineers elevation for the
24.5 mark = 20.153
Difference in Elevation 0.577

Elevation Equation between Sacramento Southern Railroad and Reclamation District #551

Elevation of Mr. Stone's B.M. a blue keel mark on N.E. corner of floor on
Vorden Wharf opposite "E" 1156+00 21.500
Sacramento Southern Railroad Elevation for the same B.M. 16.493
Difference -5.007

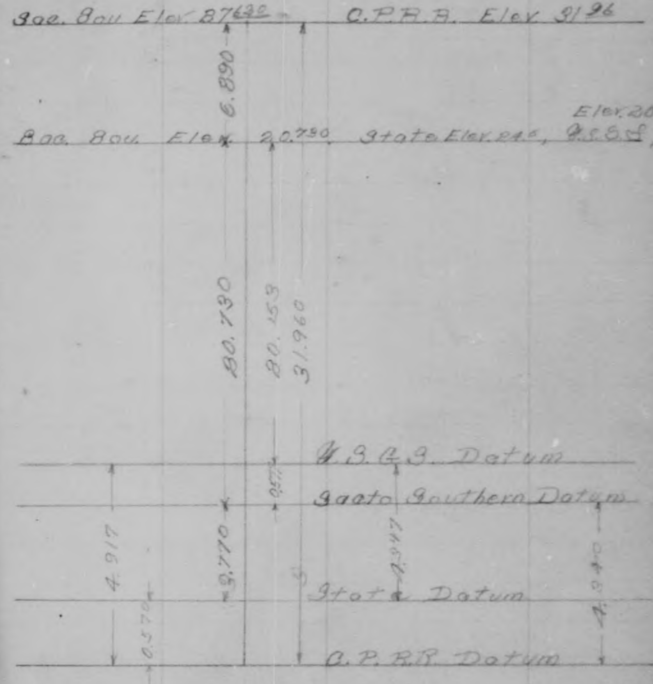
Difference between Sacramento Southern Railroad Datum and Pierson District
Datum at Pump House, Nov. 18, 1906, copied from "P" Line level book, page 45. -5.484
Jan. 20, 1910.

Copied February 12th 1927
R. B. [illegible]

Opposite Sta. 125+ on poplar tree near abutment on River Side road Elev. 20.000

Courtland on top of pile Elev. 19.648

Walnut Grove. Opposite Sta. 1397 on oak tree Elev. 13.389



See page 70

Equation of Levels on River Gauge on A. Brown's Wharf. Walnut Grove.

Elev. 0^{000} Gauge at Walnut Grove opp. "E" 1436+

0.526

Elev. 0^{000} Sacramento Southern Railroad Datum.

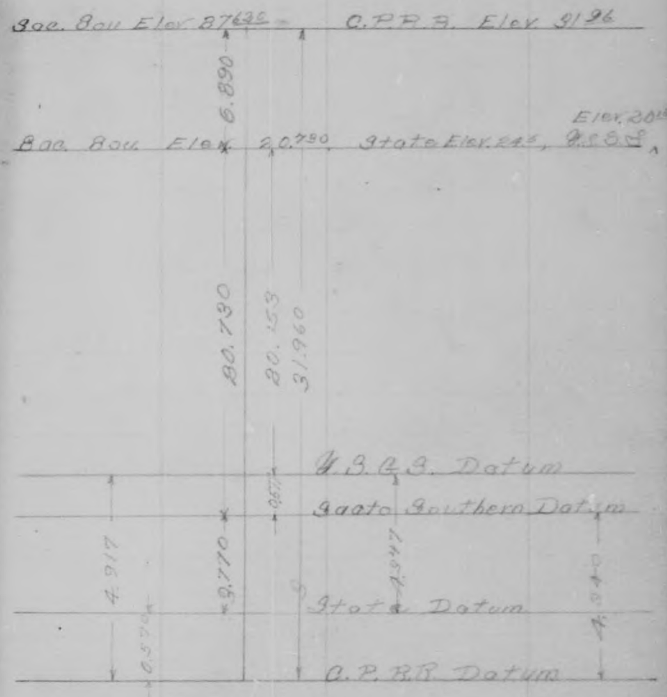
Notes copied from page 3 High Water Marks by P.E. Dufour.

B.M. at Walnut Grove in Oak Tree Elev. 12.369 as
" " Constand top of pile Elev. 18.831 0.000
Grand Island Bridge over River 19.646 .648
Req. side road at end of Car line. Elev. 18.009 .389

20
20.577
18.000
2.567

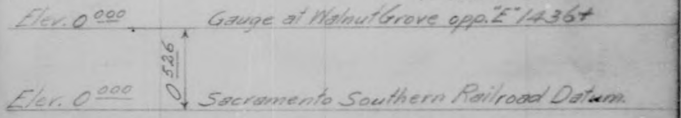
20.577
19.646
.937

13.339
.577
13.916
12.369
1.547



See page 70

Equation of Levels on River Gauge on A. Browns Wharf. Walnut Grove.


Elev. 0.000
Gauge at Walnut Grove opp. "E" 1436+
0.526
Elev. 0.000
Sacramento Southern Railroad Datum.

Notes copied from page 3. High Water Marks by P.E. Dufour.

13.8	5 P.M.	March 20,	1907		oppo Sta. E 679
13.8	6. P.M	"	"	"	at U. Greens house
14.3	7. A.M.	"	21	"	A Hub driven to mark
					High Water Elev. 30' S of S
					Gumtree in front of U Greens house.
14.3	11. A.M	"	"	"	
14.2	1. P.M	"	"	"	
14.1	4. P.M	"	"	"	
13.9	10 A.M	"	22	"	Taken at oppo. head of Randall Island D 771
14.1	10 20 A.M	"	22	"	" " fence corner Ralstons & Hollisters
14.4	10 25 P.M	"	22	"	" oppo. T 1168
14.5	10 25 P.M	"	22	"	" " T 1146 at fence post
					near barn - note - this fence post
					has Two Notches the lower Elev.
					19.74 H.W Mark Edwards break
					oppo Notch H.W Mark at Flood of March 24, 1907
14.5	10 25 P.M	"	[illegible]		Taken oppo T 1111 - A stake
					driven in levee just before break
					levels taken March 28th 1907
12.6					Taken oppo Courtland Gauge
12.8					" " Verden
13.2					" near break of Pierson
8.5	2 PM	"	23	"	Elev of water inside Tyler island

Gage Readings oppo Sta. 643

Sacramento River

March 1907

17.9	5 P.M.	March 20	1907		River in front of U. Greens
18.6	7 A.M	"	21 "		" " " " " "
18.9	11. A.M.	"	21 "		" " " " " "
19.0.	1. P.M	"	21 "		" " " " " "
19.2	4. P.M.	"	21 "		" " " " " "
19.4	5^{30} "	"	1		
18.5	8^{30} AM.	"	22. "		A Hob driven at water level oppo. B.M. on cotton wood Tree Sta 780+70
18.1	9^{45} P.M	"	22 "		Taken oppo Steam boat slough
17.8	2^{15} P.M	"	22 "		" at Vorden oppo Sta E1265+70
19.5		March	21 1907		Gage read by Bob Daniels oppo Sta 648.
15.4		"	24 "		Backwater Gage read by Bob Daniels " " "
B.M.	6173	20.476		14.302	B.M. set at High Water
			2.405	18.070	B.M. a Hob driven on south side of south Gum Tree infront of U. Greens House

Courtland gauge

March 1907

21.4	10. P.M.	March 21 1907	Readings by P. E. Dufour
21.6	12. P.M	" 21 "	" " " " "
21.7	3. A.M	" 21 "	" " " " "
21.8	7 A.M.	" 22 "	" " " "
22.1	1 P.M	" 22 "	" " " "
22.3	3 P.M	" 22 "	Highest point reached
-3.77	correction to be subtracted to reduce levels to Sacramento Southern Datum		
18.5	see page 43		Highest elevation of flood at Courtland

Isleton

16.8	11 P.M	March 23 "	A notch cut on N.W. corner of freight shed on Wharf. N.W. cut in building with knife to designate place
7.7			Highest Elev. of water inside of levee at Isleton
6.2	1 P.M.	" 30 "	Elev. of water inside levee at Isleton

Note – see page 64

Walnut Grove Gage Reading March 1907

Taken from gage set in front of Hotel Sac Southern Elev

16.4	6 P.M.	March 22	1907
16.6	10 P.M.	" 22	"
15.4	4 A.M.	" 23	"
15.6	7 A.M.	" 23	"
15.8	10 A.M	" 23	"
16.1	12 A.M.	" 23	"
16.2	1 P.M.	" 23	"
16.4	3 P.M.	" 23	"
16.5	5 P.M.	" 23	"

Elev. of High Water Sacramento River (copy)

March 1907

18.8	Taken at fence corner bet Ralstons and Hollisters oppo. D 771
18.5	" opposite Sta. 780+70 - Randall Island oppo D 800+50
18.5	" at Courtland gage oppo. D 840+50
18.3	" opposite head of Steam boat Slough oppo D. 939
17.7	" at Vorden opposite Sta. E 1265+70 oppo D 1049
16.9	" oppo E 1097 or oppo T 1111
16.6	" at Walnut Grove in front of Hotel oppo T 1146
16.4	" " head of Tyler Island oppo. B.M. No 19 Sta 1455+00 oppo. T 1176

Note _ See pages 61 and 62

P. E. Dufour Leveler

0472

High Water Elevations of Flood of March 1907

Elev.		
16.4	Taken opp Sta. E^9 1455+50	Taken fromt stake set by P. E. Dufour at 6.30 P.M. March 24, 1907 just before Tyler Island levee broke. Water Elev. transfered to Walnut Tree a nail in blaze on face Three ft from ground 150' opposite sta. E^9 1455+50
15.8	" oppo Sta. E^9 1497 on Georgiana Slough	Taken from trash left by flood wave
14.7	" " Sta. E^9 1535 " " "	" " " " " " "
12.9	" " Sta. E^9 1570 " " "	Taken from H.W. Mark a notch on tree in front of F. Gomez house on Andrus Island information from F. Gomez – Time of H.W. 7 P.M. March 24, 07
11.9	" " Sta. E 1650 " " "	Taken From H.W. Mark at pumphouse on Andrus Island a blue Mark on Concrete end wall of discharge pipe Mark made by W. Thisby – information from W. Thisby time 7 P.M. March 24 1907
9.7	" " Sta. E 1695+24 " " "	Taken from thrash left by flood wave
8.6	" " Sta. E 1769+90 " " "	" " " " " "
16.7	" " Sta E 1810 Sacramento river	Taken from thrash left by flood wave
16.8	" " Sta E 1896+87 "	" Isleton. High water mark a notch cut on N.W Corner of freight shed on Wharf H.W cut in building with knife to designate the place information from Mr. Harris time 11 P.M. March 28, 1907

See pages 62 & 63

Note: See pages 62 & 63 for level notes of these high water marks

— continued —

0473

High Water Elevations of Flood of March 1907

16.8 Taken oppo Sta. E 1936 See page 64 Sacramento River. In front of Libby McNeil & Libby cannery from stake set at time of high water. 11 A.M. March 23, 1907 - information from Mr. Horner, contractor in charge of building. Levels where taken April 8, 1907

16.4 Taken oppo. Sta E 2018 See page 63 " River Taken 80' above upstream end of Brannan Island a knife cut in fence post on Rt. hand of wagon road information from A. Willson Taken April 8, 1907. Time of high water 11 P.M. March 23, 1907

8.4 " oppo. Sta. E 2186 on See page 74 Seven Mile slough Elev from thrash left by flood. Taken April 15th 1907

8.2 " " Sta. E 2191 " See page 74 " " Taken from thrash left by flood. Taken April 15th 1907.

8.4 " " Sta E 2208 " See page 73 " " Taken from thrash left by flood. Taken April 15th 1907

8.0 " " Sta. E 2210+50 See page 73 Three " " Taken from thrash left by flood. Taken April 13th 1907

7.4 " " Sta E 2216 See page 73 " " " " Taken from thrash left by flood. Taken April 14th 1907

6.9 " " Sta E 2221 See page 75 " " " " Taken from thrash left by flood March 24th 1907

6.5 " " Sta E 2311+50 See page 75 " " " " Taken from thrash left by flood March 24th 1907

High Water elevations
Flood of March 1907

6.4	See page 74 Taken at E 23‸90	San Joaquin River	From thrash left by flood water. Marshalls landing March 04/07
6.2	See page 74 Taken at E‸2502	" "	" Taken from water mark - a nail driven in boat landing oppo Sta. E 2502 information from J. Jensen March 25/07
6.2	See page 79 Taken oppo E‸2585	" "	" Taken from water mark a mark on warehouse at Gutmans landing. Information from Mr. Gutmans March 25/07

P. E. Dufour leader

0475

High Water Elevations
At Rio Vista. March 24, 1907

Sta	B.S.	H.I	F.S	Elev
B.M.	3.779	26.402 ~~26.779~~		22.623 ~~23.000~~
T.P.#1	2.679	16.753 ~~17.130~~	12.328	14.074 ~~14.451~~
H.W. Elev.			2.881	13.872 ~~14.240~~
T.P	2.618	14.880 ~~15.257~~	4.491	12.262 ~~12.6[illegible]~~
W. M			3.802	11.078 ~~11.455~~

Note Correction to be added to U.S.G.S. Elev. to reduce elev. to S.P.Co. Southern Datum is +0577, see pages 42 and 43

			2.765	12.115 ~~12.492~~
H.W. Elev.			1.102	13.778 ~~14.155~~

These levels should be investigated.
B W.

T.P.#1	2.899	16.973 ~~17.350~~		14.074 14.451
			3.087	13.986 ~~14.[illegible]~~
T.P	3.971	14.169 ~~14.546~~	6.775	10.198 ~~10.575~~

April 16, 1907

Elevation of U.S.G.S. B.M.

↗

B.M. is U.S.G.S. B.M. plate on front wall of bank at Rio Vista elev. to be corrected

13.872
+0.577 correction see oppo. page.
14.449 Blue mark on telephone pole in front of Chases store.

11.078
+0.577
11.655 Elev. of notch cut in side of pile by J. M. Sullivan in front of J. M. Sullivan wharf at at foot of Main and Rio Vista St H.W. mark of 1904. Old gage on same pile.

12.115
+0.577
12.692 Elev. of 16 ft. mark on State Gov gauge nailed to pile on J. M. Sullivan wharf at foot of Main St and Rio Vista St. 4th pile from up stream side of wharf

13.778
+0.577
14.355 H. W. mark on J. M. Sullivans wharf at foot of Main and Rio Vista St on up stream corner of lumber shed on wharf shed running at right angles to stream. Water Mark located by John Holland of Rio Vista, March 24, 1907

Elev taken off of T.P.#1

High water mark on front of saloon

continued on next page

High Water Elevations At Rio Vista, March 24, 1907

W. M.		14.169 ~~14.546~~	+.240	14.409

April 15, 1907

14.409 correction to be added see note on page 51
+0.577
14.986 High Water Mark on wharehouse California Transportation Co. wharf a nail driven in down stream side of face of Ware house of California Transportation Co on wharf at Rio Vista. H. W. Mark March 24 1907 On Sacramento river information of J. L. Smith of Rio Vista

Note Break at Brannan Island levee went out at 11 P. M. on March 23rd 1907. the elev. of water being 16.7 ft the highest water mark was taken on sled on J. M. Sullivan wharf at Rio Vista on March 24th 1907 and being 16.11 ft.

P. E. Dufour leveler

Rio Vista from Farmers Line 1905.
Rio Vista Bank Bldg. east corner of, two feet above sidewalk Tablet stamped 23 B 1905 F 17" Elev. 22.623.

*

Collinsville, From Nelsons Line 1906.
Collinsville .5 mile N. of, S.W. corner of School house, at cross-roads, iron post stamped "5 B"
Elevation- 5.027

* See letter from U.S.G.S. Apr. 29, 07. in file Marked "Level Notes"

Break in Levee at head of Tyler Island

Break extends from a point off head of Tyler island at paint shop and extends down stream a distance of approx 850 ft. to a point 100' above the Danford residence

Cause of break low levee.

Water ran over and broke through on night of March 23rd but was stopped and held out by a row of sacks five high the pressure became so great that it pushed the sacks out

Time of break 6:55 P.M. March 24, 1909

Cross section of break distances approx and commencing from up stream side of break.

$\frac{1.2}{25.0}$ $\frac{1.4}{50.0}$ $\frac{3.1}{100.0}$ $\frac{2.4}{150.0}$ $\frac{2.5}{200.0}$ $\frac{2.5}{250.0}$ $\frac{3.0}{300.0}$ $\frac{2.0}{350.0}$

Elev of water at time of break 16.4
" " " March 28th 11.4 outside
" " " " " 8.5 inside

Break was closed April 10th 1909

It was closed by driving two row of piles on upper end were [illegible] and filled in with brush weighted down with sacks of dirt. the lower end the dirt was held in place by brush packed against a row of 2"x6" driven in cut and then sand thrown on by dredger

P. E. Dufour Levela

0479

Break in levee at Brannan Island

Break situated at a point approx. 2000 ft. below Grand Island and 1305 ft below barn on Heuhn property.

Break approx 2000 ft long

Cross section of break commencing at upstream end of break and in line with old levee distances approximate

-17.8	-21.3	-18.3	-17.3	-10.8	-9.3
75.0	125.0	200.0	300.0	400.0	500.0

500 to 700 original levee.

-25.8	-22.3	+6.7	+2.7	+1.7
750.0	850.0	925.0	1000.0	2000.0

Cause of break low levee

Time of break March 22, 1907

Elevation of water at time of break 16.7

Cross Section of levee 125' above break taken April 13, 1907

Sac river					road		
5.12	6.8	11.4	14.2	16.8	16.9	16.7	17.0
0.0	4.2	19.8	24.0	38.0	41.8	52.3	55.0

16.1	12.2	9.06	7.6
60.8	73.8	88.7	123.4

4.9 elev of water inside of break

Elevation of river at a point opposite barn on Heuhn property 1305 ft above break 5.2

Elev. of water inside Island oppo barn on Heuhn property 3.6 ft

Difference in Elev. 1.6 ft

Dredges started to work to close break on April 14th 1907.

P. E. Dufour Leveler

Break in Pierson District levee

Break situated at a point approximatly 1800 feet above the junction of the Locke and Lovenson levees with Pierson District levee.

Approximate length of break 900 ft

Depths length approximately commencing at west end of break

-5.9	-12.0	-8.0	-6.0	-7.0	-6.0	0.0	-1.0
100.0	200.0	300.0	400.0	500.0	600.0	700.0	800.0

-1.0
900.0

Time of break 11.00 P.M. March 28, 1907

Elevation of water at time of break 14.5 ft.

Height of water on March 28, 1907 time break was received 12.' both inside and outside of break

Highest elevation of water inside levee 12.9 ft

Average height of levee at break 17.7 ft

Dredger No. 551 started to work to follow break April 9th 1907

C. E. Dufour

Backwater and River Elevations: Jan. and Feb. 1911.

		Elev.	
Opp. Sta. E 482	Jan. 8	1.1	Taken from mark on Piles in Trestle: also checked from Water marks in alfalfa field West of Sta. 478.
	Jan. 16	9.6	
	Jan. 19	7.2	
Opp. Sta. D 743	Jan. 8	1.0	Taken from gage at Franklin Road Bridge.
	" 16	10.5	
	" 19	7.0	

A. G. S.

Copied by E. B. L

Elevation of Back Water and Sacramento River, Feb. 1911.

Opp. Sta.	Date 1911	Elevation	Remarks.
"E" 38	Feb. 1	$26^{\underline{4}}$	Sacramento River
"E" 40	" 1	$14^{\underline{0}}$	Back Water, Chinese Gardens South of "Y" St.
"E" 67	" 1	$25^{\underline{95}}$	Sacramento River
"E" 121	" 1	$25^{\underline{75}}$	" "
"E" 121	" 1	$25^{\underline{4}}$	Water under Trestle at Natural Gas Well.
"E" 148	" 4	$12^{\underline{7}}$	Backwater under Trestle
"E" 231	" 4	$12^{\underline{7}}$	" " " Willow Slough.
"E" 332	" 4	$12^{\underline{6}}$	" " " Sac. Drainage Canal.
"E" 380	" 1	$14^{\underline{45}}$	" at 10:00 A.M.
"E" 380	" 1	$20^{\underline{7}}$	Sacramento River at 6:00 P.M.
"E" 457	" 1	$14^{\underline{4}}$	Backwater
"E" 457	" 1	$19^{\underline{6}}$	Sacramento River
"E" 528	" 1	$14^{\underline{5}}$	Backwater - Stiff Breeze - 12:30 P.M.

Copied. by E. B. L.

0482

High Water Elevations of Flood of March 1907.

Sta:	Elev:			
at Culvert on Riverside Road near Swanston's House	14.00.	Backwater actually observed	A.G.S.	Mar 25/07
U.S. Gage. Foot of L Street Sac'to	27.00	Sacramento River.	7. A.M.	Mar 20/07
120 + 00.	26.40	Sacramento River.		Mar 20/07
149 opp: Right	13.80	Backwater actually observed	A.G.S.	Mar 25/07
40 Right: Sac'to River.	26.80	stake driven by F.A. Miller.		Mar 20/07.
231 opp: Left	13.90	Backwater actually observed	A.G.S	Mar 25/07.
331 opp. Left.	14.00	Backwater. observed.	A.G.S	Mar 25/07.
380 opp.	22.00	Reading on Gage Sac'to River		Mar 20/07
381 " Left	15.10	Backwater Nail in Warehouse at Freeport. A.G.S.		Mar 25/07
458 opp.	21.50	Sacramento River. on Gage placed by Geo: Baumgartel		Mar 20/07.
458 opp. Right + Left	15.20	Backwater. taken from Drift + Marks on Trees. which differed less than one tenth. A.G.S.		Mar 25/07.

High Water Elevations of Flood of March 1907.

Sta.		Elev.	
491	off. Left. Backwater.	15.50.	Taken from several sights, on Drift which did not materially vary. afs.

0484

Gauge Readings. (copy)

Sacramento. Mar. 29, 1907.

Yolo Bridge

4.53 P.M. U.S. 27^{5}

C.P. 31^{8}

L. Street

5.00 P.M. U.S. Weather Bureau 26.6

N. Street

5.06 P.M. $26.^{7}$

Sewer Sump.

5.15 P.M. 26^{2}

Signed - O.A. Kroft.

Gauge Readings (Copy)

Sacramento
May 2 1907

Following are readings on Gages in Sacramento River, oppo. city of Sacramento taken in connection with datum Sacramento Southern Railroad Levels

March 29. 1907	Elev.
Gage just above Yolo Bridge (U.S.)	24.20
U.S. " at foot of L Street S end of Freight Shed	23.50
Gage at foot of N Street at Transportation Co's Shed	23.40
S. Water foot of S Street (Gage destroyed)	23.20

The above gages all check with Sacramento Southern Railroad Levels, but owing to position of Yolo Bridge Gage (it being on down stream side of pile Dolphin) when reading same, during flood in River, two tenths should be added, owing to eddy formed by piles, thus when above reading of 24.20 was taken, the surface of water at that point was 24.20 Gauge actually read 24.00

(signed) A. C. Scurfield.

H.W. Elevation oppo Steamboat slough oppo ~~E 1125~~ D .939

March 22, 1907

Sta.	B.S.	H.I.	F.S.	I.S.	Elev.	
B.M.	12.656	23.462			10.806	B.M. see page 47 level book #7
T.P.	4.215	25.365	2.312		21.150	
T.P.	3.236	24.384	4.217		21.148	
T.P.	5.322	24.583	5.123		19.261	
H.W.M.				6.282	18.301	Set hub in levee. at river elev oppo Sta E1125

(Note) March 29, 1907 Levee and hub where viewed and there where no signes from drift or otherwise that river had been any higher than when hub was set March 22. 1907 P.B.S.

H.W. Elevation at Vorden or oppo. Sta. ~~E1265+70~~ D 1049

March 23, 1907.

B.M.	5.675	23.082			17.207	B.M. is E Base B.M. see page 68 level book #8 set hub 10' Rt of B.M. being on Walnut tree oppo E1265+70
W.M.				5.371	17.711	Hub

See above note which also refer to this hub.

H.W. Elevation oppo Sta. ~~E1397~~ F 1176

5:30 P.M. March 27, 1907.

B.M.					13.339	
				+3.55	16.889	This water elev. was taken by Marking B.M. tree with blue kiel as B.M. was flooded, after water receded the distance was measured and found to be 3.5

High Water Elevations Walnut Grove March 29, 1907

Sta.	B.S.	H.I.	F.S.	I.S	Elev	
B.M. #20	10.867	18.422			7.556	B.M. 170' Rt T1197+49.7 page 78 T line levelboo
T.P.	5.181	22.322	1.231		17.191	
T.P.	5.432	22.123	5.631		16.691	
T.P.	5.874	22.536	5.461		16.662	
W.M. E1439				5.923	16.618	W.M. a stake set near S.E corner 1st house above wharf on river side of road Hub set 6²⁰ P.M. March 29. 1907 just before levee broke at Tylor Island

High Water Elev Oppo Sta E9 1455+50 March 29, 1907

Sta.	B.S.	H.I.	F.S.	I.S	Elev	
B.M. #49	6.243	19.920			13.677	B.M. on S. bank Tyler slough 150' Rt of 1455+50 (see list of B.M.s on file
H.W.M.				3.522	16.398	Taken from stake set 6²⁰ P.M. March 28, 1907 just before Tylor Island levee broke levels taken on March 29 and High Water elev. transfered to tree with B.M. on it. A nail driven in blaze facing river and marked H.W.M.

Levels to get Elev of high water on Tyler Island on Georgiana Slough

April. 9 - 1907

Sta	B.S.	H.I	F.S.	I.S.	Elev.	
B.M.	5.792	19.469			13.677	B.M. on S. bank Tyler Slough 150' Rt
T.P	4.493	21.041	2.921		16.548	Sta E^9 1455+50. (see list of B.M
T.P.	5.361	21.654	4.748		16.293	on file in office
T.P.	5.857	22.518	4.993		16.661	Note - Levels were taken on
T.P.	3.379	21.105	4.792		17.726	Andrus Island as far as pumphouse
H.W.M opp E^9 1497				5.301	15.804	Taken from drift opp Sta. E^9 1497
B.M.	3.238	19.568	4.775		16.330	March 23. 1907
T.P.	2.954	18.565	3.952		15.611	
T.P.	4.925	20.795	2.695		15.870	
T.P.	4.152	19.896	5.051		15.744	
T.P.	5.457	20.484	4.864		15.027	
T.P.	4.393	20.220	4.657		15.827	
H.W.M oppo. E^9 1535				5.800	14.720	from Drift Oppo Sta E^9 1595
T.P	3.561	19.210	4.571		15.649	March 23 1907
H.W.M. oppo E^9 1535				11.126	8.844	from Drift in Andrus Island
T.P.	3.409	18.227	4.392		14.818	
T.P.	5.848	20.897	3.198		15.749	
T.P.	6.105	20.905	6.097		14.800	
T.P.	6.065	20.488	6.482		14.423	
T.P.	4.721	19.561	5.648		14.840	
T.P.	5.643	20.352	4.852		14.709	
T.P.	3.327	18.458	5.221		15.131	
T.P.	4.446	19.007	3.897		14.561	
H.W.M. oppo Sta. E^9 1570				6.697	12.310	Taken from Mark on tree in front
T.P	5.571	18.886	5.692		13.315	of F. Gomez house - information
T.P.	3.937	18.064	4.759		14.127	from F. Gomez March 23, 1907
T.P	4.230	18.502	3.792		14.272	
T.P	4.764	19.105	4.161		14.341	

Level to get Elev. of High Water on Georgiana Slough April 9, 1907

Sta.	B.S.	H.I	F.S	I.S.	Elev	
T.P.	1.621	16.504	4.222		14.883	
T.P.	5.223	10.960	10.767		5.737	
T.P	11.234	18.873	3.321		7.639	
H.W.M	oppo. Sta. E1650			7.560	11.313	A. Mark on concrete end wall of discharge pipe Andrus Island pump house, Information from W. Thiel March 23 1907
B.M.	5.039	16.468		7.444	11.429	On S.E. corner of concrete end wall Andrus Island pump house
H.W.M.	Oppo. Sta. E1650			8.856	7.612	Flood Water in Tyler Island taken from drift. March 24 1907
T.P.	3.551	16.572	3.447		13.021	
T.P	4.746	17.372	3.946		12.626	Note.- Georgiana slough was crossed at pumphouse and levels carried on Tyler Island
T.P.	1.223	12.953	5.642		11.730	
T.P.	3.237	14.890	1.300		11.653	
T.P.	2.904	15.430	2.364		12.526	
T.P.	4.953	15.831	4.552		10.878	
H.W.M.	Oppo. Sta. E1695+24			6.101	9.731	Oppo. E1695+24. Hub set to designate place. Taken from drift. March 23 190 Georgiana Slough
H.W.M.	Oppo. Sta. E1695+24			7.826	8.005	Flood Water on Tyler Island taken from drift March 24 1907
T.P.	4.599	15.328	5.102		10.729	
T.P.	4.398	16.119	3.607		11.721	
T.P.	4.552	16.100	4.571		11.548	
T.P	7.471	19.784	2.787		12.313	
T.P	5.384	20.804	4.364		15.420	

Level to get Elev. of High Water on Georgiana Slough April 9th 1907

Sta	B.S	20^{H}.804	F.S	1.S	Elev	
T.P.	3.771	20.523	4.052		16.752	
T.P.	2.767	20.359	2.931		17.592	
T.P.	2.779	20.410	2.728		17.631	
T.P.	5.963	21.002	5.371		15.039	
T.P.	3.172	20.000	4.174		16.828	
H.W.M.	Oppo. Sta. E 1769+20			11.413	8.587	Oppo. Sta. E 1769+20 Georgiana Slough, taken from thrash left by flood March 23, 1907
H.W.M.	Oppo Sta. E 1769+20			12.298	7.702	Oppo. Sta. E1769+20 Flood Water in Tyler Island taken from drift. Time of High Water March 24, 1907
B.M.#57				14.705	6.295	B.M. 160' Rt Sta. E 1769+20 Elev. 6.318 6.295 0.023 difference

Levels to get Elev of High Water at Isleton

BM#61	13.261	20.654			7.393	list of B.M. on file On Oak Tree 175' Lft. 1914+50 see
T.P.	5.271	22.664	4.261		16.393	
T.P.	4.721	23.029	4.356		18.308	
T.P.	4.756	23.164	4.621		18.408	
W.M.	Oppo. Sta. E1896+87			6.361	16.803	oppo. Sta. E1896+87 A notch cut on N.W. corner of freight shed on wharf information from Mr Harris. 11 P.M. March 23, 1907
W.M.	Oppo. Sta. E1896+87			15.449	7.715	Flood Water in Andrus Island oppo Sta. E1896+87 from drift. March 24, 1907
T.P.	4.593	23.115	4.642		18.522	
T.P.	4.623	23.812	4.926		18.189	
T.P.	4.324	23.519	4.617		19.195	

Levels to get Elev. of High Water at Isleton

Sta	B.S	H.I	F.S	I.S	Elev	
		23.519				
T.P	4.568	23.143	4.944		18.575	
T.P.	4.732	23.346	4.529		18.614	
T.P	4.852	23.777	4.421		18.925	
W.M.	Oppo. Sta. E1810			7.036	16.741	Oppo. Sta. E 1810 Taken from thrash left by flood. March 23, 1907
B.M. #59				15.206	8.571	Checked on B.M. 80' Lft of E 1809+60 (see list of B.M's on file). Elev. 8.571 8.554 diff. 0.017

Levels for Elev. of High Water at Break in Brannan Island levee April 3 1907.

Sta.	B.S.	H.I	F.S	I.S.	Elev.	
B.M. #61	13.187	20.580			7.393	On Oak tree 175' Lft E 1914+50 see list of B.M's on file
T.P.	3.212	23.078	0.664		19.866	
T.P.	5.318	23.628	4.768		18.310	
T.P.	3.446	23.927	3.147		20.481	
T.P	3.721	24.021	3.627		20.300	
H.W.M. Oppo. Sta.	E1936			7.201	16.810	Oppo. Sta. E1936 Taken from stake set by Mr. Horner - Contractor in charge of building the Libby McNeil & Libby Co's Cannery. March 23, 1907
T.P.	1.274	22.068	3.227		20.794	
T.P.	5.171	23.277	3.962		18.106	
T.P.	4.721	23.377	4.621		18.656	
T.P.	3.271	21.876	4.772		18.605	
T.P.	5.931	23.165	4.672		17.234	
T.P.	4.538	21.711	5.992		17.173	
T.P.	7.532	21.907	7.316		14.395	
T.P.	5.406	21.830	5.503		16.424	
T.P.	6.271	22.770	5.331		16.499	
T.P.	4.512	22.910	4.372		18.398	

Levels for Elev. of High Water at Break in levee at Brannan Island

April 3, 1907.

Sta.	B.S	H.I	F.S	I.S	Elev.	
		22.910				
T.P.	4.002	21.916	4.996		17.914	
T.P.	4.862	22.426	4.352		17.564	
T.P	4.052	21.361	5.117		17.309	
T.P.	3.661	21.184	3.838		17.523	
T.P.△	3.502	19.855	4.831		16.353	oppo. Sta. E2018 (scaled from blue print.)
H.W.B.M	oppo	Sta. E2018		3.146	16.709	A nail driven on west side of fence post 80' above break marked H.W. information from A. Wilson. Time of break and high water 11 P.M March 23, 1907
H.W.B.M.	Oppo.	Sta. E 2018		10.742	9.113	oppo Sta. E 2018. Flood Water in Brannan Island Taken from trash and drift March 24, 1907

See page 54 for x sect notes

April 4 1907

Levels to check peg line of levels to Break in Brannan Island Levee

See note above for B.M.

				Elev.
B.M. H.W	4.653	21.362		16.709
T.P.	5.014	21.160	5.216	16.146
T.P.	6.162	22.995	4.327	16.833
T.P.	5.846	22.907	5.934	17.061
T.P.	4.627	22.699	4.835	18.072
T.P.	6.342	23.120	5.421	17.278
T.P.	5.221	22.840	6.101	17.519
T.P.	4.846	21.760	5.926	16.914
T.P.	8.896	24.921	5.735	16.025
T.P.	4.698	23.467	6.132	18.789

0493

Levels to check peg line of levels to Break in levee at Brannan Island
April 4th 1907

Sta.	B.S.	H.I.	F.S.	I.S.	Elev	
		23.467				
T.P.	5.864	23.342	5.989		17.478	
T.P	5.359	22.967	5.734		17.608	
T.P	6.091	23.135	5.928		17.044	
T.P	6.099	23.126	6.108		17.027	
T.P	5.229	22.586	5.769		17.357	
T.P	2.632	19.892	11.326		11.260	
B.M#62				13.969	5.923	20' Rt Sta. E1942+95 nail in Sycamore tree (see list of B.M. on file)

Elevation 5.986
5.923
Diff 0.013

Levels for Elev. Back Water at Break in Pierson District levee
March 25, 1907

B.M# 19	10.039	22.288			12.249	see page 75 T line level book
T.P	5.575	18.821	9.542		12.746	
H.W.M. Oppo. Sta. T1146				4.367	14.454	Oppo. Sta T1146 scale from blue print. A. Notch on gate post north of barn on Locke & Lavensons Estate Notch made by Mr. Fountain at 10.25 P.M. March 24, 1907 this gate post also has H.W.M. of Edwards break on it, (see T line level book page 65
T.P.	4.927	20.002	3.246		15.075	
T.P.	5.172	19.472	5.702		14.300	
T.P.	5.352	21.450	3.274		16.198	
B.M.	6.741	22.529	5.662		15.788	B.M on fence post junction of Locke & Lavenson and pierson district levee
T.P	5.786	21.961	6.354		16.175	
H.W.M. Oppo Sta. T1111				7.421	14.541.	A stake driven in levee 10.25 P.M March 24, 1907 just before pierson district levee broke. Oppo. Sta. T1111 (scaled from blue

– See next page –

Level for Elev of Back Water at Break in Pierson District Levee

March 28, 1907

Sta.	B.S.	H.I	F.S	I.S	Elev.	
		21.961				
Oppo. Sta T 1111				9.852	12.109	Elev of water March 28, 1907
" Sta T 1111				8.710	13.251	highest water inside Pierson District, from trash near break
" Sta T 1111				2.950	17.691	Elev. of levee at break

Levels connecting Intersections of B & 19th Sts Sac'to. City July 13/07
& B & 20th

Sta.	+ S	H.I.	Rod	Elev.	
BM	4.507	34.454		34.190 29.947	C.P. Datum. Sac'to Southern Datum on concrete platform at Depot. Sac'to.
T.P.	4.902	34.056	5.300	29.154	
T.P	4.635	33.859	4.832	29.224	
T.P	0.450	30.046	4.263	29.596	
T.P	4.197	26.943	7.300	22.746	
BM.			3.005	23.938	S.E Cor. 7th & E St Granite Water Table of Building. City Elev: 23.826 Sac'to Sothern: 23.938 Diff. 0.112
T.P	3.270	25.255	4.958	21.985	
T.P.	4.740	25.755	4.240	21.015	
T.P.	4.605	25.990	4.370	21.385	
T.P	4.840	26.022	4.808	21.182	
T.P	5.150	26.004	5.168	20.854	
T.P	4.220	25.556	4.668	21.336	18 St
T.P	4.630	25.331	4.855	20.701	
T.P	4.585	26.056	3.860	21.471	
T.P	4.860	26.776	4.140	21.916	
T.P	4.412	26.800	4.388	22.388	SW Cor. 19th & C
City BM.			4.100	22.700	City BM 18th & C. N.E Round Cor. City Elev. 22.490 Sac'to Soth. 22.700 Diff 0.210
T.P	13.192	38.842	1.150	25.650	
BM.	7.240	38.024	8.058	30.784	on plug 1' North of 1st Tel. Pole East of 19th St.
Intersec: Main Line. CPRR and Cent 19th St Base Rail			2.40	35.62	
H.W. on West Hotel Sign board bet: 19th & 20th			6.40	31.62	information from North. Elec: Ry Co. H.W. March 1907.
BM.	7.160	37.944		30.784	
Intersec Main Line C.P.R.R. & Cent 20 St Base Rail			2.03	35.91	

NORTH SOUTH

Tk Curb Tel Pole B.R. Siding Tree Cutting Curb Tel Grade of 19 St
21.1 33.6 33.8 35.3 35.5 35.4 34.2 33.8 23.6 23.1
53 22.5 20.5 17.5 13.0 4. 7 12. 33. 50.

NORTH B.R. Siding SOUTH North Street
follows [illegible] 34.8 Road 108. 33.8 35.9 24. 13. Cent. Main Line 35.9 20.4 36.0 37.7 6 50 100. 200 follows Cent 20 St on Road xing

	+ S	HI	Rod	Elev	
B.M.	8.520	39.304		30.784	on plug
T.P.	4.900	41.154	3.050	36.254	Base Rail 22nd St. Elev. 36.06.
T.P.	4.930	41.184	4.900	36.254.	
T.P.	4.950	41.234	4.900	36.284	
T.P.			4.475	36.759	T.P. near Nat. Gas well

Levels Connect.g Sac'to Southern & Western Pacific + Northern Electric.

B.M.	8.642	39.426		30.784	on plug 1' North of 1st Tel. pole East of 19th St.
B.M.			6.840	32.586	Nail in Tel. Pole S.W. Cor 20th & B St. Sac'to
B.M.			6.070	33.356	Spike in Tel Pole South of Subway at 19th St.

Western Pacific Elevation 38.100
Sac'to Southern 32.586
+ Diff. 5.514

Northern Elec. Elevation 32.920.
Sac'to Southern 33.356
– Diff. 0.436

Summary of Differences in Elevation Data See page 43

Sacramento Southern	0.000.	
Sacramento City	– 0.210	feet
Central Pacific R.R.	+ 4.243	"
Western Pacific Ry	+ 5.514	"
Northern Electric Ry.	– 0.436	"
Recl. District #551	– 5.007	Johnson "

see page 48

AJS

0497

Check Levels from page 69.

Sta.	+S	H.I.	Rod	
BM.	3.800	34.584		30.784
T.P.	4.150	27.464	11.270	23.314
T.P.	5.770	27.639	5.595	21.869
T.P.	3.564	25.223	5.980	21.659 →
T.P.	4.814	25.687	4.350	20.873
TP	4.840	26.197	4.330	21.357
T.P.	5.540	26.583	5.154	21.043
T.P.	4.576	26.082	5.077	21.506
T.P.	4.546	25.778	4.850	21.232
T.P.	5.265	27.631	3.412	22.366
BM			3.76	23.871
TP	3.819	26.185		22.366
T.P.	4.829	27.352	3.663	22.522
T.P.	11.386	34.225	4.513	22.839
TP	3.363	33.890	3.698	30.527
T.P.	4.861	33.224	5.527	28.363
T.P.	4.690	34.203	3.711	29.513
B.M.	H		4.320	29.883

Beginning July 26 19[illegible] D. Butler

Check Levels

Water table of Building S.E. Corner 9th & E Streets
Elev on Former Run 23.8[illegible] Error .067

On Concrete Platform at S.P. Depot.
Elev 29.947 Error .064

Check Levels see Page 69

B.M.	4.470	34.417		29.947	On concrete platform S.P. Depot See Sec. Elev
T.P.	4.761	33.256	5.922	28.495	
	5.630	34.596	4.290	28.966	
	4.438	35.035	3.999	30.597	
	3.418	27.235	11.218	23.817	
	4.880	27.217	4.898	22.337	
	4.684	27.119	4.792	22.425	
BM	3.160	27.119	3.160	23.959	City BM. S E Corner 7th & E. Elev taken with rod
	3.235	25.660	4.684	22.425	
	4.159	25.665	4.154	21.506	
	4.699	26.334	4.030	21.635	
	4.696	26.542	4.488	21.846	
	4.213	25.786	4969	21.573	
	3.816	25.629	3.973	21.813	
	3.824	25.298	4.155	21.474	
T.P.	4.973	25.899	4.372	20.926	
	5.242	26.955	4.186	21.713	
	5.164	27.215	4.904	22.051	
	12.925	35.975	4.165	23.050	
B.M.			5168	30.807	See page 69. Elev made 30.784 by G.G.S. Check .023 Butler

Check Levels

Gatmans landing oppo. Sta. E2585 March 25, 1907

Sta.	B.S	H.I	F.S	I.S.	Elev.	
E2584	9.462	9.282 13.462			0.18 4.00 -1.9 6.1 -1.28 5.5 6.211 10.391	Elev. taken from Gauges and hight assumed check from elev. sent from San Francisco office see list on level note file Taken oppo Sta. E 2585 on San Joaquin River, from a mark on up stream side of warehouse on Gatmans landing - information from Mr. Gatman. March 25, 1907
E2584+50			11.2			
E2585			10.6			
H.W.		3.071				

X Sections Lt E2585

Lt. C.

San Joaquin River $\frac{4.3}{94.8}$ $\frac{9.1}{77.0}$ $\frac{8.4}{67.0}$ $\frac{5.7}{50.0}$ $\frac{-0.9}{23.0}$ $\frac{-1.28}{0}$

H.W. Elevation Head of Sherman Island

Sta.	B.S	H.I	F.S	I.S.	Elev.	
BM#71	1.198	13.851			12.653	BM# 71 - 75' Lt 2215+30 See list of BM's on level note file
H.W.M.	Oppo Sta E.2216			6.450	7.401	Oppo Sta. 2216 Drift Drift March 24, 1907
BM#71	4.468	17.121			12.653	
E2210+50 T.P.H.W	6.956	14.925	9.152		7.969	Oppo Sta. 2210+50 on Three Mile Slough. Hub driven to designate place from drift March 24, 1907
H.W.M.	Oppo. E2203			6.534	8.391	Oppo E 2203 Seven Mile Slough Drift March 24, 1907
	Oppo E2203			6.715	8.210	Oppo E 2203 flood Water in Brannan Island Drift March 24
T.P.	5.072	15.751	4.246		10.679	
B.M	6.927	14.641	8.037		7.714	B.M. a hub driven near fence post fence crossing levee continued on bottom next page

See page 76 for X section notes.

H.W. Elevations Oppo E2390

Marshalls landing

Sta	B.S	H.I	F.S		Elev.	
B.M	0.00	14.182 ~~16.17~~			14.182 16.17	Elev. taken from Mr. Crow B.M. A black chalk mark on saloon Diff bet. Sacramento Southern and Mr Crews. datum. 1.988 ft
H.W.M. Oppo. E2390				7.75	6.412 ~~8.42~~	Oppo E2390 taken from drift and thrash, March 24, 1907

R.E.D.

H.W. Elevations Oppo. E 2502

E2501	9.325	11.465 ~~12.925~~			2.14 ~~4.000~~	Elev. taken from guages and elev. assumed checked from elev. sent from San Francisco office see list on level note file
				10.0	1.465 ~~3.9~~	
				10.4	1.065 ~~2.8~~	
H.W. Mark Oppo. E 2502				5.303	6.165 8.022	Oppo. Sta. 2502 a nail driven in wharf information from J. Jensen March 25. 1907

X. Sections Lt E 2502

Left

0.

$\frac{3.0}{86.2}$ $\frac{8.8}{64.2}$ $\frac{7.6}{50.0}$ $\frac{0.9}{0.0}$

San Joaquin River

R.E.D.

continued from preceeding page 73

		14.641				
H.W.M. Oppo. E 2191				6.242	8.399	Opp. E 2191 Seven Mile Slough Drift March 24, 1907
W. Elev				11.631	3.010	Present Elev. Water in Brannan Island
W. Elev.	12.206	15.216			3.010	Elev. was taken from water surface inside Brannan Island
	Oppo. E. 2186			6.810	8.4	Oppo. E 2186 Seven Mile Slough from drift March 24, 1907

See page 76 for X section notes

0501

Oppo. Sta. E 2261

H. W. Elevations.

Sta	B.S	H.I	F.S	1.8.
E 2259+50	10.231	13171 ~~14.231~~		
2260+50				10.8
2261				10.9
W. M. Oppo. E2261				6.23

X Sections of levee Lt E 2261

Left

Three Mile Slough				H.W				C.
→ 2.7	4.7	3.2	6.9	10.6	10.2	2.6	2.2	
9.7	89.0	63.0	55.0	45.0	36.0	21.0	0.0	

H W Elevation Oppo. E 2311+50

2311+50	8.765	11.765 ~~12.765~~		
2312				8.9
2312+50				9.3
2313				7.5
H. W. M. Oppo. E 2311+50				5.23

X Section levee Lt E 2311+50

Three Mile Slough						
→ 2.6	6.6	13.4	11.9	7.2	3.0	
86.0	57.0	37.0	27.0	17.3	0	

Elevations taken from guineas

Elev
2.94
~~4.000~~
2.371
~~3.5~~
2.271
~~3.3~~
6.941
~~8.001~~

Elev. taken from guineas and elev. assumed checked from elev. sent from San Francisco office see list on level note file

Oppo E 2261 on Three Mile slough taken from thrash hub driven to designate place March 24, 1907

3.000
~~4.000~~
2.865
~~3.9~~
2.435
~~3.5~~
4.465
~~5.9~~
6.535
~~7.53~~

Elev. taken from guineas and elev. assumed. checked from elev. sent from San Francisco office see list on level note file

Oppo E 2311+50 on Three Mile slough taken from Thrash hub driven. to designate place March 24 1907.

High: Water Elev.
Oppo Sta D.771

B.M	2.692	28.479		24.787
			10.002	18.479
T.P	3.746	26.931	5.294	23.185
T.P	6.301.	24.946	8.286	18.645
T.P.	4.279	24.382	4.843	20.1[illegible]
			5.792	18.590
			10.501	13.881,
T.P	5.723	24.956	5.149	19.233
	4.996	25.303	4.649	20.307
B.M.			6.492	18.811
B.M				
			11.221	14.082

March 22 1907

Sta 780+70

B.M on Cotton Wood Tree

A stake driven at water level oppo D 800+50
Sta E 780+70

10 A.M. 3/22

Elev of River Head of Randall's
" " Backwater " " "

Sta. D 771

River Elevation a stake driven near fence corner Ralston. Hollister fence

Elev Backwater a hub driven on fence line Ralston. Hollister.
Sta. D 771

X. Section of levee — Left — ℄

E 2216 — river 9.2/175.7 — 6.9/69.0 — 6.5/160.5 — 4.7/153.0 — 7.4/140 — 9.4/131.0 — 9.7/122.0 — 2.6/79.0 — 6.1/64.0 — 2.5/50.0 — 1.8/32.0 — 1.9/0.0

E 2203+50 Sta. approx. — Edge of Slough 3.6/89.0 — 8.2/62.0 — 14.4/48.0 — 10.4/36.0 — 8.4/23.8 — H.W 6.1/16.0 — 5.4/8.0 — 0.0/0.0 W. Elev Inside

Oppo Le — Edge of Slough 3.6/75.0 — 2.4/73.0 — 3.4/45.0 — 8.7/33.0 — 9.4/16.0 — 6.6/12.0 — 5.0/10.0 — 3.0/0.0 W. Elev Inside

See page 73&74 for high water Elev.

R.E. Dufour [illegible]

High Water Elevations
Flood of January 16th/09

Sta:	Elev:	
30' North of S.P. Bridge	29.70	Bridge bet: Sacto + Yolo.
U.S. Gage. Foot of L. St	29.3	(29^{6} U.S.W.B. Jan 17 1909 at 12^{15} A.M.)
A 0+00 opp:	29.2	mark on Tree below B.M.
A. 4+40 opp:	29.29	Mark on Post by City Engineer Randle (at R Bull[illegible])
A. 20	29.15	Drift on Levee.
E 40+00	29.1	Stake driven by F. A. Miller
E 63+00 opp:	28.80	Driftwood on levee
E 121.	28.40	Mark on Gage set in River
High Water Mark at Western Pacific Bridge. American River	30.60	

0504

High Water Elevations
Flood of Jan? 16 /09.

351	opp:	23.10	Mark on Fence
377	opp:	22.90	on Driftwood
426	opp:	22.60	on Driftwood
458	opp:	21.80.	on Gage set by Geo. Baumgartel.
465	opp:	11.10	Backwater taken from Driftwood.

0505

Check on
Level of H. W. M opp: Sta 352
Jan: 19 / 1906.

Jan 30/06

	+S	H I	Rod	Elev:	
BM.	6.23	23.83		17.600	Bench left of 355+20
T.P	4.53	26.59	1.77	22.06	
H.W.M.			7.8	188	taken on fresh Driftwood
H.W.M.			7.5	19.1	" " " "

0506

	Dist from slope stake		Dist out from center	Dist over 50 ft			
480+50	29.0	33.6	62.6	12.6	$\frac{12.6+8.0}{2} \times 30$	=	309.0
480+20	23.5	34.5	58.0	8.0			
479+90.	34.0	32.4	66.4	16.4	$\frac{8.0+16.4}{2} \times 30$	=	366.0
+75	28.5	32.2	60.7	10.7	$\frac{16.4+10.7}{2} \times 15$	=	203.25
479+60	46.0	34.0	78.0	28.0	$\frac{10.7+28.0}{2} \times 15$		290.25
479+30	44.0	33.5	76.5	26.5	$\frac{28.0+26.5}{2} \times 30$		817.5
479	29.5	32.9	60.4	10.4	$\frac{26.5+10.4}{2} \times 30$		553.5
478+80	40.0	31.3	71.3	21.3	$\frac{10.4+21.3}{2} \times 20$		317.0
478+50	39.5	29.7	69.2	19.2	$\frac{21.3+19.2}{2} \times 30$		607.5
478	21.5	32.9	54.4	4.4	$\frac{19.2+4.4}{2} \times 50$		590.0
477+30	at edge of RR. 30 ft out;			0.0	$\frac{4.4}{2} \times 50$		110.0
477	21.6	32.2	53.8	3.8	$\frac{3.8}{2} \times 50$		95.0
476+75	17.3		49.3	0.0	$\frac{3.8}{2} \times 25$		47.5
476+50	25.5	31.9	37.4	7.4	7.4×24		177.6 7
476+26	50 ft for center cord.						3)85.40 16

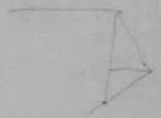
Reinforcing of Levee begins at Sta about Sta 1356 & 1258 or from 1250 to 1206. where the dredge is now working May 22 1905

May 22nd/1910

0508

		Alignment.
950	T.W. Dean.	Tan.
1000	C.C. Deming et al.	
1050	G.A. Smith	1°30' Lt
1100	E.D. Runyon	Tan
1150	M. Burry	Tan
1200	Runyon & Buckman	Tan
1250	P.J.V. Loben Sels	0°30' Rt.
1300	McKeehan & Greene	0°30' Lt
1350	Judson E King	Tan
1400	M.L. Wise	1°30' Rt.

15 11
47



476+28 E·458

Pump hos use over Pump Riv

occupying 710 sq ft

29 947
29,883
.064

191
92
28
9
377

23 938
23,871
.067

21,713
21,659
.054

30.807
30 784
.023

10.77+50
3
10.74 00

(3-20-02--1M)

2.G 200

SOUTHERN PACIFIC CO.

(PACIFIC SYSTEM.)

Engineering Department.

INSTRUCTIONS TO LEVELLERS.

1.—Instruments will be kept in adjustment, but dependence for accurate work will be on equal back and foresights, where practicable to take them, or where taken of unequal lengths, it must be compensated for in subsequent sights.

2. No sights on turning points are to be more than 300 feet long, and must be shorter where heat in the air, or other cause, makes results of long sights inaccurate.

3.—Leveller must read all sights on turning points himself, to tenths, through the instrument or otherwise, trusting to the rodman only for the hundreths and thousandths of the reading.

4.—Rodman will keep a check note-book of turning points.

5.—Leveller will check up his turning-point computations by ifferences of back and foresight sums, and not depend on the dman's check notes.

6.—Intermediate elevations must be checked by difference of evations and of rod readings before being platted on profiles.

7.—Rod must be swung back and forth on all backsights and resights on turning points, to ensure getting the shortest posible reading.

8.—Transverse slopes must always be taken at each station of urvey, and as much oftener as country requires.

9.—Take high water elevations frequently, of all water-courses, large or small, search carefully for drift marks, and get all available information from old residents.

10.—On both preliminary and final surveys, when the line is in the valley of a water-course, large or small, with grade nearly parallel to the flood mark, the leveller will note elevation of water surface (or bottom of water-course, if dry) at least once each quarter of a mile, and as much oftener as may be necessary to completely show the grade changes of the water-course. The results will be platted on all profiles, a dash (—) drawn at the proper elevation being used to indicate the water surface, or bed of water-course, and the usual dotted line being reserved for indicating flood marks.

11.—Put in Bench Marks at least every half mile in valleys, and every one thousand feet in hilly regions. Mark all benches with the letter of the line and the elevation.

12.—Bench Marks must be turning points and not put in by intermediate sights. Their location must be fully described in field book.

13.—When connecting with another line, make full notes of the difference of elevations, and how much higher elevation of bench is, by one set of levels than by the other.

14.—All level books must be paged and fully indexed.

0510